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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,009	06/18/2001	Bor-Ming Hsieh	MSI-749US	3405
22801	7590	08/23/2004	EXAMINER	
LEE & HAYES PLLC 421 W RIVERSIDE AVENUE SUITE 500 SPOKANE, WA 99201			WU, QING YUAN	
			ART UNIT	PAPER NUMBER
			2127	

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/884,009	Applicant(s) HSIEH, BOR-MING	
	Examiner Qing-Yuan Wu	Art Unit 2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/13/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-24 are pending in the application.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. Claims 4-6, 8-15, 17-19, and 21 are objected to because of the following informalities: the recurring omission "of threads" after the used of first/second plurality and the inconsistent used of thread and node (i.e. claims 4 and 10). The terms thread and node were used interchangeably throughout various claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. The following terms lacks antecedent basis:
 - i. The second plurality of nodes- claim 4, line 24.

- ii. The root node- claim 10, lines 19-20.
- b. The following claim language is indefinite:
 - i. As per claim 1, line 7, it is uncertain what's the applicant mean by "deterministic amount of time" (i.e. what type of deterministic scheme is used?). Applicant should also consider defining "priority based scheduling semantic" in this claim.
 - ii. As per claims 2, 4-6, 16, and 23, it is uncertain what priority is the root thread or how the second plurality of threads is sorted (i.e. ascending to descending priorities), it is assumed, according to the specification and the claim language of claim 10 that the root thread has the highest priority and the subsequent threads or "next thread" has the next lowest priority in the second plurality of threads. Regarding claim 4, the term "represent" is unclear. Applicant should consider revising these claims.
 - iii. As per claims 3, 9, and 20, it is unclear what is meant by the phrases "other queue" or "more than a single other queue access" (i.e. are there other queues beside the run queue?).
 - iv. As per claim 4, line 23, it is not clearly indicated whether "the second plurality" refers to "the second plurality of threads."
 - v. As per claim 8, line 3, it is not clearly indicated whether "the first plurality" refers to "a first plurality of threads."
 - vi. As per claims 5-6, 9-15, 17-19, and 21 had similar deficiency as mentioned above in claims 4 and 8.

- vii. As per claim 7, it is not clearly indicated whether this is a method claim or computer-readable media comprising computer executable instructions claim (i.e. applicant is required to rewrite the claim in the correct independent form).
- viii. As per claim 22, it is not clearly indicated whether this is a system claim or computer-readable storage medium comprising computer executable instructions claim.
- ix. As per claim 24, it is uncertain if this is a computer readable medium having computer program claim or a run queue data structure claim.

6. The rejections above are examples of the errors that recurred throughout various claims. There are too many errors to list independently. Applicant should consider fixing all these errors in the amendment.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

8. Claims 1-12, and 14-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Williams (U.S. Patent 6,411,982).

9. As to claim 1, Williams teaches the invention as claimed including a method to be implemented in a computer system comprising a processor and a memory, the method for managing a run queue comprising a first plurality of threads sorted with respect to one another based on thread priority [col. 2, lines 58-60], the method comprising;

in a deterministic amount of time [col. 2, lines 1-5 and lines 12-15], associating a second plurality of threads that is priority sorted [col. 2, lines 52-55 and lines 65-67; 204, Fig. 2] with the run queue in a manner that maintains a priority based scheduling semantic of the run queue [col. 3, lines 17-27].

10. As to claims 2-4, Williams teaches the invention as claimed including wherein the second plurality of threads comprises a root thread, and wherein associating the second plurality of threads with the run queue further comprises:

inserting only the root thread into the run queue to represent the second plurality of nodes [col. 3, lines 19-22; 208, Fig. 2], and inserting each thread in the second plurality of threads into the run queue independent of any additional other queue access [col. 3, lines 19-22; 208, Fig. 2]. (Examiner's interpretation of "any additional other queue access," as any tasks waiting to be transfer or insert into the run queue since the applicant did not preclude nor define this limitation).

11. As to claims 5-6, Williams teaches the invention as claimed including wherein associating the second plurality of threads with the run queue further comprises:

inserting only a root thread of the second plurality into the run queue; and wherein the method further comprises:

removing the root thread from the run queue [col. 3, lines 28-30; 214, Fig. 2]; and

responsive to removing the root thread, and independent of any additional other queue access, inserting a next thread of the second plurality into the run queue such that the priority based scheduling semantic of the run queue is preserved [col. 3, lines 19-22; 204-216, Fig. 2].

12. As to claims 8-12, and 14-15, these are system claims that correspond to the method claims 1-6. Therefore, they are rejected for the same reason as claims 1-6 above.

13. As to claims 7, and 16-22, these are product claims that correspond to the method claims 1-6. Therefore, they are rejected for the same reason as claims 1-6 above.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams (U.S. Patent 6,411,982).

16. As to claims 23-24, Williams teaches the invention substantially as claimed in claims 1-2 above. Williams does not specifically use the terms “a first and second dimension data field.” However, Williams discloses a priority-ordered queue and an in-service queue in which the highest priority task gets executed over other tasks.

17. It would have been obvious to one of ordinary skill in the art to see Williams’ queues as to having first and second dimensional arrangement. Because doing so would improve the efficiency and performance of the run queue by allowing the task to run as close to its scheduled time as possible by inserting the next highest priority task at the current time to be run closest to the front of the run queue to be executed.

18. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams as applied to claim 8 above, in view of Applicant Admitted Prior Art, hereafter “AAPA”.

19. As to claim 13, Williams teaches the invention substantially as claimed in claim 8. Williams does not specifically teach the queue being implemented in a linked list structure. However, Williams discloses a Priority-Ordered queue that transfers tasks to In-Service queue on

a first-in first-out (hereafter FIFO) basis. In addition, AAPA discloses as prior art a traditional run queue implemented as a linked list [AAPA Fig. 1; specification, page 2, lines 2-3].

20. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to combine the teachings of Williams and AAPA because AAPA's link list would improve the flexibility of Williams' system by using linked list to overcome the FIFO limitation of removing/adding the threads in the queue.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,872,938 and 6,003,101 to Williams teaches method of implementing priority queue.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qing-Yuan Wu whose telephone number is (571) 272-3776. The examiner can normally be reached on 8:30am-5:00pm.

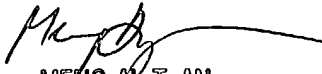
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Qing-Yuan Wu

Examiner

Art Unit 2127


MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100